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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/719,887	11/21/2003	Keiji Yada	B-5308 621524-7	1431

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EXAMINER

KAO, CHIH CHENG G

ART UNIT	PAPER NUMBER
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2882

DATE MAILED: 08/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/719,887

Applicant(s)

YADA ET AL.

Examiner

Chih-Cheng Glen Kao

Art Unit

2882

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 May 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1 and 6 is/are allowed.
- 6) ☒ Claim(s) 2-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 May 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 8/6/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 1 and 6 are objected to because of the following informalities, which appear to be minor draft errors including grammatical and lack of antecedent basis problems.

In the following format (location of objection; suggestion for correction), the following corrections may obviate their respective objections: (claim 1, line 10, "the above electron probe"; deleting "above"), (claim 1, line 14, "for allowing that alignment operations"; deleting "that"), (claim 1, line 15, "astigmatism correction be"; inserting - to- - after "correction"), and (claim 6, line 14, "X-ray s"; deleting the space between "X-ray" and "s").

For purposes of examination, the claims have been treated as such. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 2 and 4 are rejected under 35 U.S.C. 102(b) as being anticipated by Wilkins (US Patent Application Publication 2001/0001010).

Art Unit: 2882

3. Regarding claim 2, Wilkins discloses an X-ray microscopic inspection apparatus (paragraph 1) having X-ray generating means for generating X-rays (paragraph 1, line 3) by allowing an electron beam from an electron source (paragraph 53) to impinge on a target for X-ray generation (fig. 5, #20) and for inspecting an object to be inspected (fig. 3, #7) by utilizing said X-rays (paragraph 32), the apparatus comprising a magnetic superposition lens having a magnetic field generating portion (fig. 5, #75) disposed in the vicinity of an electron generating portion of an electron gun (fig. 5, #70) for an electron probe, and a scan coil (fig. 5, #72) for freely swinging an electron probe formed via said magnetic superposition lens (fig. 5, #75) on a surface of said target for X-ray generation (fig. 5, #20).

4. Regarding claim 4, Wilkins further discloses electron probe control means for scanning an electron beam (fig. 5, #72), and X-ray CT image generating means for allowing a microstructure of a cross section of interest of said object to be displayed by processing plural sets of images based on data of transmitted X-rays of said object in response to said scanning (paragraph 113).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2882

5. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wilkins in view of Sawahata et al. (US Patent 6555816).

For purposes of being concise, Wilkins discloses an apparatus as recited above.

However, Wilkins does not disclose an electron beam axis alignment coil disposed in the vicinity of a generating portion of an electron generated from an electron source, for aligning an axis of an electron beam while accelerating the electron.

Sawahata et al. teaches an electron beam axis alignment coil (fig. 1, #22) disposed in the vicinity of the generating portion of an electron generated from said electron source (fig. 2, #2-4), for aligning an axis of an electron beam while accelerating the electron (fig. 2, #2-4).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the apparatus of Wilkins with the electron beam axis alignment coil of Sawahata et al., since one would be motivated to make such modification to deter divergence of electrons (fig. 1, #5) as shown by Sawahata et al., which would lower the intensity of radiation and signals derived from the object.

6. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wilkins in view of Wang (US Patent 5044001).

For purposes of being concise, Wilkins discloses an apparatus as recited above.

However, Wilkins does not disclose fluorescent X-ray detecting means having a detecting portion disposed above said object and outside an X-ray target for detecting a fluorescent X-ray generated from said object; and elemental analysis means for analyzing elements of said object based on fluorescent X-ray signals from said fluorescent X-ray detecting means.

Art Unit: 2882

Wang teaches fluorescent X-ray detecting means having a detecting portion (fig. 1, #17 and 18, and col. 8, lines 67-68) disposed above said object (fig. 1, #14, and col. 8, lines 61-62) and outside an X-ray target (fig. 1, #12) for detecting a fluorescent X-ray generated from said object; and elemental analysis means for analyzing elements of said object based on fluorescent X-ray signals from said fluorescent X-ray detecting means (col. 7, line 52, to col. 8, line 6).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the apparatus of Wilkins with the fluorescent X-ray detecting means and the elemental analysis means of Wang, since one would be motivated to make such modification to reduce radiation dosage (col. 4, lines 11-14) as shown by Wang, thus reducing cellular harm, and to obtain more information than just an image of the object.

Allowable Subject Matter

7. Claims 1 and 6 contain allowable subject matter. The following is a statement of reasons for the indication of allowable subject matter.

8. Regarding claim 1, prior art does not disclose or fairly suggest an X-ray microscopic inspection apparatus including a scan coil for freely swinging an electron probe formed via a magnetic superposition leans on a surface of a target for X-ray generation and electron image generating means for performing imaging of a target surface utilizing signals from reflected electron detecting means, wherein the apparatus is provided for allowing alignment operations including focus adjustment to said target for X-ray generation and astigmatism correction to be

Art Unit: 2882

performed on the basis of image information from the electron image, in combination with all the limitations in the claim.

9. Regarding claim 6, prior art does not disclose or fairly suggest an X-ray microscopic inspection apparatus including a scan coil for freely swinging an electron probe formed via a magnetic superposition lens on a surface of a target for X-ray generation, wherein the target comprises a plurality of target elements, and wherein the apparatus is arranged so that characteristic X-rays of a wavelength of interest may be generated by swinging said electron probe to a target element appropriate for generating X-rays having the wavelength of interest, in combination with all the limitations in the claim.

Response to Arguments

10. The replacement drawing and supplemental declaration received on 5/23/05 are acceptable. Pages 32-33 of Yada, K., et al. ("Projection X-ray Shadow Microscopy Using SEM") have also been received. As such, this document has been considered by the Examiner.

11. Applicant's arguments filed 5/23/05 have been fully considered but they are not persuasive.

In response to Applicants' argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., a magnetic superposition lens as defined in paragraph [0031] of the application) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations

Art Unit: 2882

from the specification are not read into the claims. Wilkins does disclose a magnetic superposition lens (fig. 5, #75).

Applicants further argue that the magnetic superposition lens of Wilkins cannot be deemed to be in the vicinity of the electron generating portion of the source. The Examiner disagrees. The magnetic superposition lens (fig. 5, #75) of Wilkins is in the vicinity of the electron generating portion of the source (fig. 5, #70). In fact, all components are in a vicinity of each other.

Therefore, Applicants' arguments are not persuasive, and the claims remain rejected.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Art Unit: 2882

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chih-Cheng Glen Kao whose telephone number is (571) 272-2492. The examiner can normally be reached on M - F (9 am to 5 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



gk



EDWARD J. GLICK
SUPERVISORY PATENT EXAMINER



REPLACEMENT SHEET

1/8

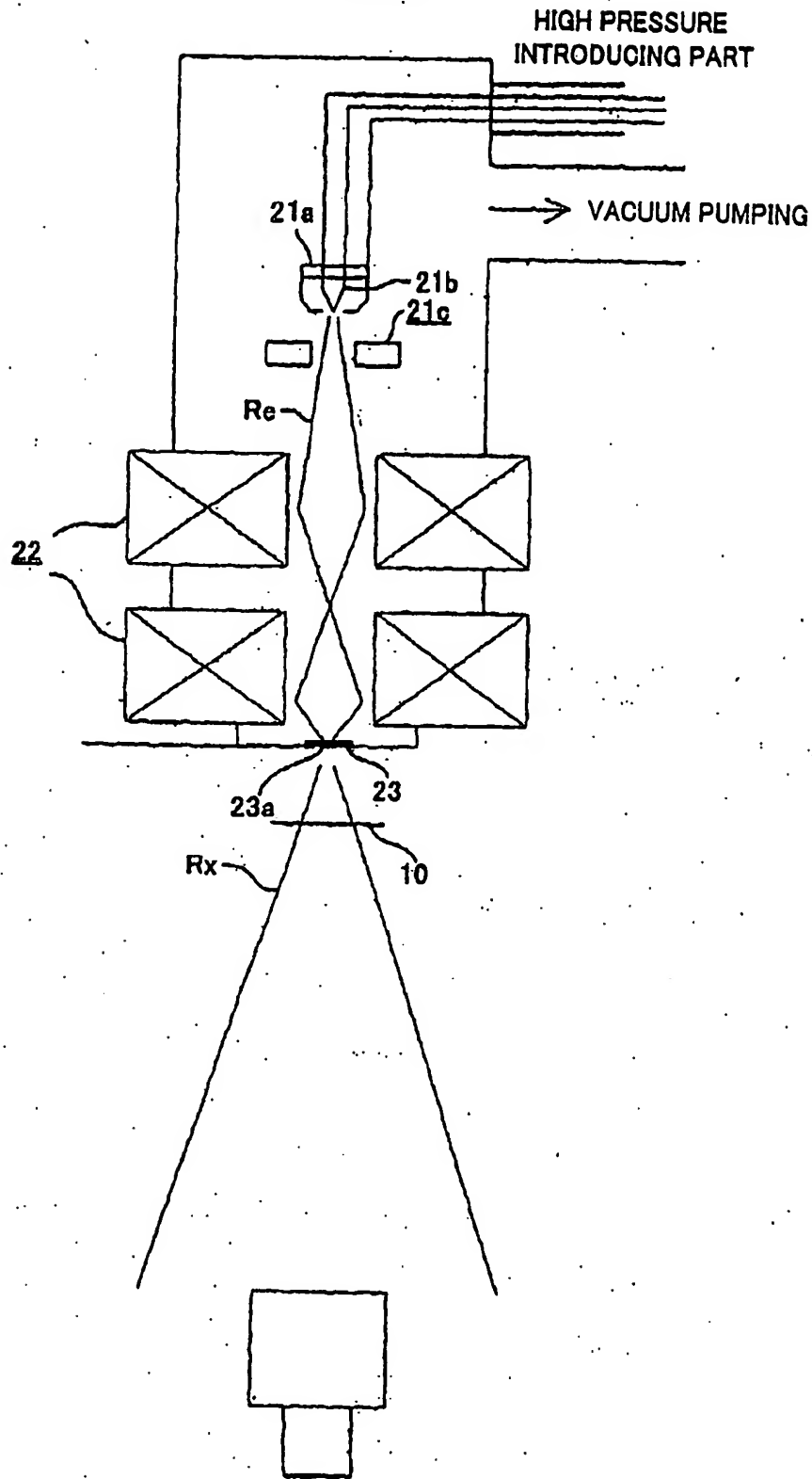


FIG.1 (Prior Art)

OK
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7/23/05